DOCUMENT RESUME

ED 187 618 SO 0.2 590

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TITLE Geographers in the Post-Industrial Age: A Conceptual Curriculum Model for Geography.
INSTITUTION State Univ. of Utrecht (Netherlands).
PUB DATE 79
NOTE 15p.; Paper presented at Annual Meeting of the National Council for Geographic Education (Mexico City, Mexico, October 29-November 3, 1979).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Concept Formation; *Curriculum Development; Curriculum Evaluation; *Curriculum Research; Educational Objectives; Global Approach; *Human Geography; Models; *Systems Analysis

ABSTRACT

The document describes a conceptual curriculum model for designing original geographical curriculum materials. The model emanated from a series of research projects at the Geographical Institute's Department of Geography for Education at the Rijksuniversiteit of Utrecht, the Netherlands. The objective of the research was to gain insight into the developmental process used in human geography materials from 1974 through 1978. A diagram illustrating the model presents six developmental phases which are explained in the rest of the document. Phase I consists of formulating the overall objectives and roughly estimating the target group. It emphasizes the aim as global in relation to theme and educational perspectives, and points out that each phase also has its own aim within the context of the complete model. Phase II deals with studying secondary geographic sources. The objective is to order obtained knowledge and insights by studying the theme in breadth and depth. Phase III, development of the concepts structure, forms the hard core of the information processing model. Phase IV, designing an information structure, is divided into two subphases: designing a global information structure and designing a specific information structure. This includes delineating information content and sequence and formulating exercises and tasks. Phase V, realization, is the phase in which the project received its final form. Phase VI is evaluation. An explanation of three distinctive features of the model concludes the document. (CK)

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GEOGRAPHERS IN THE POST-INDUSTRIAL AGE;

A CONCEPTUAL CURRICULUM MODEL FOR GEOGRAPHY

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NATIONAL COUNCIL
FOR
GEOGRAPHIC EDUCATION

ANNUAL MEETING
MEXICO CITY,
OCTOBER 29 - NOVEMBER 3 1979

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National Council for Geographic Education,
Annual meeting
Mexico City
October 29 - November 2 1979

ABSTRACT

GEOGRAPHERS IN THE POST-INDUSTRIAL SOCIETY

Bell formulated in 1959 the concept 'post-industrial society' in order to try to identify the change in society structure which became more and more obvious. It is the technological principle which is the spill of the post-industrial society and which brought us an increased as well as a new type of complexity not only in technical but also in social-economic life.

The geographer's contribution to the post-industrial society

1. The post-industrial society as a highly complicated scientific society needs eminent scientific theories, methods and techniques to plan and order society in that way that man can exist economically, socially and humanistic. It is in this respect that research geographers (pure and applied), have in cooperation with other scientific specialists, a most important task.

2. In the post-industrial society education has a totally different function in comparison with the industrial society. Had education in the industrial society a function to ready people for mass-production jobs, in the post-industrial society the aim is to educate the human being for taking his unique role in society. However, in order to understand this society with its firm spatial, economic, social and cultural aspects to a certain depth, geographical information and education are of crucial importance.

As part of post-industrial processes man has less working load or no load at all, and thus more leisure time (life long learning, recurrent education etc.). Formal education is becoming more individual and more differentiated to the human being concerned. Consequently the role of the teacher is changing, becoming more that of a creative companion.

If we also take into account the extension of the communication channels, then we pose that post-industrial society urgently needs: highly enlightening geography materials.

A model for the designing and realization of original geography materials is developed at the Geographical Institute, Rijksuniversity, Utrecht, The Netherlands. This model is based on two generations of research projects.

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Utrecht, July, 1979

A conceptual curriculum model for geography

1. *Introduction*

During the session we posed the extension of the demand for highly enlightening geography curriculum materials (see abstract).
We have to see the curriculum materials as the output of a process. Only if we know the process and follow it carefully, we can hope for a good, reliable output. At the Geographical Institute's Department f Geography for Education at the Rijksuniversiteit of Utrecht, the Netherlands, research is undertaken to gain insight into the development process for curriculum materials since 1974. Two generations of projects are finished, the third generation is on its way.
The research is done in the context of doctoral research work for human geography. Besides the students research there are also pure staff-projects.

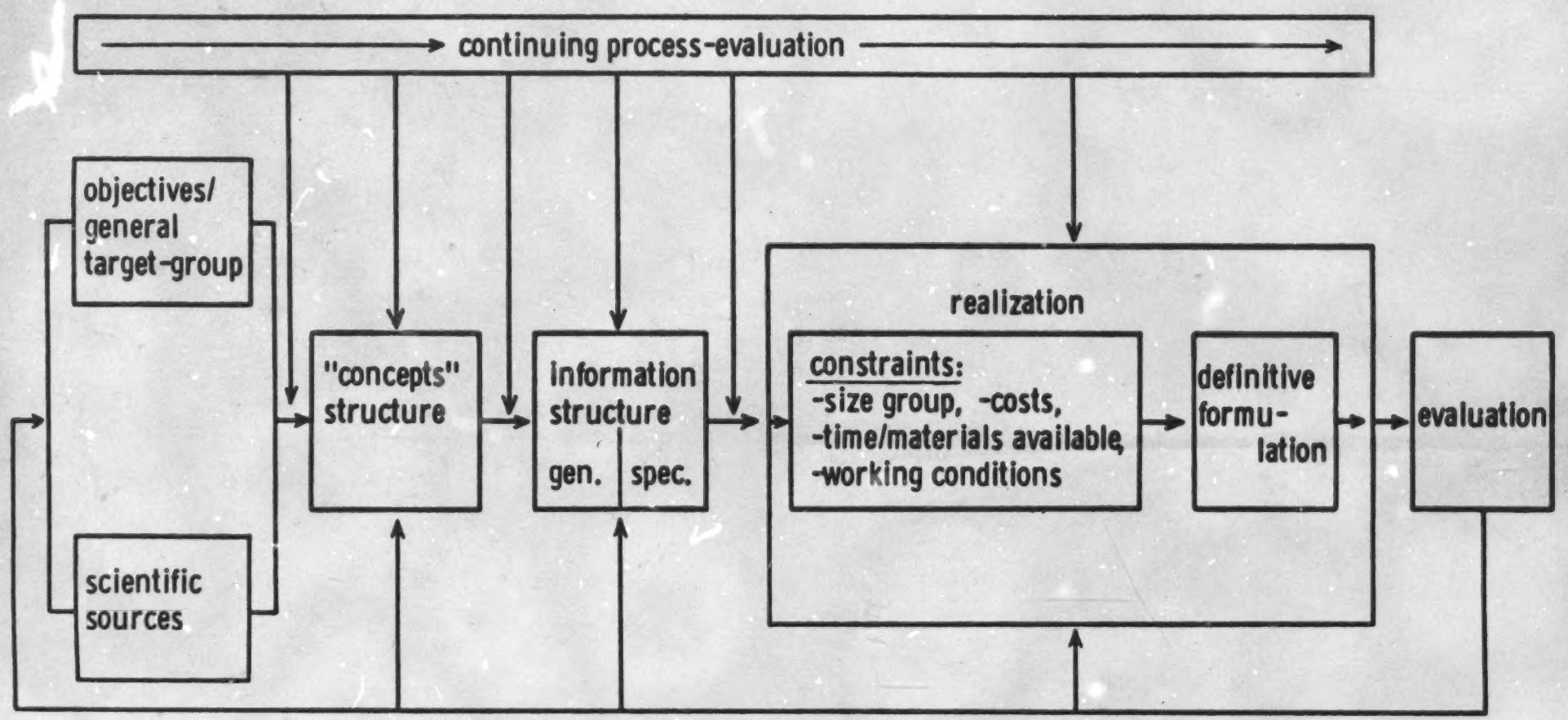
In 1976, the first generation of projects lead to the formulation of the so-called Moscow-thesis (23rd IGU-congress, Moscow), the second generation has lead, in 1978, to the conceptual curriculum model presented in this document, the third generation of projects will, in the course of 1980, give way to a curriculum system for geography. The system can be seen as a more generated form of the model, mentioned and described below.

2. *The conceptual model: diagrammatic presentation*

Thinking about structures and processes is eased by the visual representation of these structures and processes. This is the reason that here the conceptual model for information geographical acting is presented, first visual by means of a diagram, after which description of the elements follows.

There will be a continual evaluation during the development of the process, so before going to the next phase each completed phase will be re-examined in itself and in relation to previous phases. This kind of process evaluation is necessary to prevent us from losing sight of the process as such.

A CONCEPTUAL CURRICULUM MODEL FOR GEOGRAPHY



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3. *The conceptual model: description*

3.1. *Formulating the aims and roughly estimating the target-group*

In this first phase of the conceptual model the formulation of the global aim regarding the theme and the educational perspectives, takes place.

These global aims are of course insufficient to pass adequately through the process in each phase. Each of the phases in the process has its very own aim within the context of the complete model. The global aim concerning the theme and educational perspectives are continually more precisely specified.

In this first phase of reflection on the starting behaviour, the target-group is mentioned provisionally as a category; it is not until the phase of designing of the information-structure and during the realization that a specification follows and the target-group as such becomes of real importance.

3.2. *The phase of studying the geographical sources*

In this phase the sources of material relating to the theme are studied. In the first instance these will be secondary sources. It is not the task nor within the competency of the information-geographical educationist to do fundamental geographic research. To research-workers he can point out the necessity of specific source-study or, in joint collaboration, initiating such research as supply for the secondary sources.

We emphasize that it can be important that an information-geographical educationist visits the location and perceives with trained eye. Then he may be doing primary research in the sense of interviews, observations, etc.

The study of sources has to be planned in a broad way and following the methodical principles acquired by the survey of social science. So, the theme as formulated in the aims is studied in breadth and especially depth. If studying of the theme takes place only in the breadth, this will offer the information-geographical educationist an

insufficient base to deal analytically his discipline. That is why it is important that problem-orientated survey of sources is undertaken, which obliges the information-geographical educationist to engage with certain aspects of the theme on a analytical level. The information-geographical educationist must have sufficient command of his theme in terms of geography as a discipline so that he can engage in a creative encounter with the outcomes of his study of the sources in the phase of designing the 'concepts'-structure. A deficit in his command of the theme could lead to a translation of the sources studied or a disorderly choice of contents as related to the aims. This would lead to a situation which is information-theoretical inadequate and thus undesirable.

The phase is finished with a working-document. This working-document has as its primary function the ordering of obtained knowledge and insights. The degree of detail with which the working-document should be worked out will depend on the prior-knowledge of the information-geographical educationist. So, an information-geographical educationist who has an excellent knowledge of a certain theme will feel no need to work out a working-document in detail.

The amount of time spent in the phase of studying the sources depends on several factors. The most important of these are the prior-knowledge of the theme, the range of the theme, the available literature, reading- and studying-skills.

3.3. *The phase of the development of the 'concepts'-structure*

This phase is the most essential in the processing-model because an original constellation of contents emerges. For in this phase the concepts and the relationships between them are postulated as a base for the next phase, that of the information-structure. The phase of the development of the 'concepts'-structure forms a very essential element in the processing of geographical information units.

The designing of a 'concepts'-structure is a creative process, the points of departure of this construction being formed by the aims and by the results of the professional study of sources. The 'concepts'-structure is an original construction because it is the outcome of

the results of the professional study of source material, filtered by the aims. In the last resort, this is the function of aims.

In time, the evaluation will prove if the constructed 'concepts'-structure has contributed to realisation of the aims.

Thus, designing a 'concepts'-structure is a creative activity. Something new emerges. It is not, we would emphasize, an activity which involves selection or translation of the discipline. To put it more directly: *it is an activity at an analytical and authentic level within the discipline.*

The 'concepts'-structure forms the hard core of the information processing model. On the one hand it is a culmination of aims and study of source materials, on the other hand it stands at the beginning of the operational phases.

The designing of the 'concepts'-structure requires much effort and dedication because one must put the discipline to the service of the information-geographical aim. Thus, an independent handling of the discipline on a analytical level is required.

It is inherent in the designing of a construction that before the optimal one is designed, there must be a series of drafts. From the successive drafts results an ever stronger structure. After a first draft the designer can, if needed, return to the literature and if the literature is not available or gives insufficient information, there may be a need for further resource-study. Here one can think of a complementary study of sources, that differs in principal from the study of sources in the phase of studying sources (the previous phase).

The 'concepts'-structure in the geographical information process is directional in a very compelling way for the further stages of the process. The information-geographical educationist must keep strictly to the accepted design, under no condition being allowed to deviate from it. If a deviation, for what reason, is needed, it is necessary to pass through the process again from the start. Therefore it is most important that the information-geographical educationist fully agrees with the finalized form of his design. A hastily constructed and ill-considered 'concepts'-structure can cause a major loss of time and energy in a later stage. Talking over the 'concepts'-structure with

professional geographers and different experts in the field of the theme is highly recommended.

The phase of the "concepts"-structure occupies relatively a great deal of time as a result of consider ing:
- the choice of the concepts in the light of the aims;
- the indication of the connections between the concepts in which full account is taken of the shifting in socio-economic and socio-spatial coherence over time;
- and, eventually, the complementary study of sources.

The visible results of all these activities of thinking and visualising is sometimes disappointing for an outsider, namely a half page structure.

3.4. *The phase of the designing of an information structure*

Starting from the previously formulated "concepts'-structure the operationalisation activities begin in this phase, at which the target-group is also taken into account.

If necessary, in this phase, a survey of the target-group follows. Most of the time, the survey of the target-group will be restricted to a certain amount of specification. In global terms the target-group often is known. In general, such a knowledge is sufficient for the process under consideration. Of course, in the actual didactic working-situations the target-group has to be known much more precisely.
In the designing of the information structure each element is worked out on the basis of its adjuged value in the 'concepts'-structure. This working out takes place according to the aims and the knowledge of the target-group. Thus the geographical information value, as adjusted in the concepts and the relation between the concepts, is carefully preserved.
The phase of the information structure consists of two sub-phases:
a) the designing of a global information structure and
b) the designing of a specific information structure.
In the global sub-phase the information-content is delineated and also the sequence and the related form-aspects are proposed. Form-aspects include not only an indication of the means of expression, but also the learning-strategy. In the case of the learning-strategy a balance

must be found between expository and discovery learning and justified. Thanks to this procedure one gets a general view of the structure of the information in all its aspects. So the inner harmony in respect of the information-geographical and educational aspects, both within and between the elements, is maintained.
In the second sub-phase, the designing of a specific information structure, the contents and form-aspects are further worked out. Also, the exercises and tasks are in principle formulated. For the exercises and tasks have to form a unity with the information that has become available.

As stated in 3.1. each phase in the process has its own objectives within the context of the complete model. This counts especially for the specific phase of the information structure. It is of fundamental importance to formulate precisely the behavioral objectives, the taxonomical categories distinguished by Bloom c.s., as to the cognitive and the affective domain forming the guiding principle.

In the phase designing the information structure a continuing study of resources, in the sense of consulting sources, takes place, especially during the designing of the specific information structure.

3.5. *The phase of realization*

The phase of realization is a complicated one. For all elements of the specific information structure a material form must be chosen. Then all the elements can be worked out in this form.
The choice of the material form of the content, the means of expression and learning-strategy is subject to a series of constraints. The constraints are formed by the conditions in which the information will be or can be used. We mention the size of the group, the costfactor, the timefactor, material possibilities (i.e. available apparatus) and working conditions. If these conditions fundamentally change, so the material form does. At this stage there is the possibility that the constraints will be used as an excuse for one-sideness in the structure of the unit. Often, one loses sight of the content at the risk of mutilating the geographical input.
When a certain material form or a combination of possibilities has been

chosen, then the whole information-unit must be worked out in accordance with the choice. In this phase skilled ancillary helpers, such as text-writers, drawers, media-experts will be called in, conditioned by the knowledge and skills of the information-geographical educationist and the circumstances of realization.
Thus the information receives its definitive "formulation". We emphasize that also in this phase the information-geographical educationist remains responsible for the realized geographical information.

3.6. *The phase of evaluation*

Finally we come to the last phase of the process, namely the evaluation. In this phase we must check to see whether the aims have been achieved in other words, if the geographical information, developed according to the process-model, is accepted and understood by the target-group. By this, we speak of product-evaluation.
It is of great importance that the target-group by which the product is evaluated is of equal merit in its composition. By means of a learning-psychological survey, evaluation of learning-conditions and of pre-knowledge, the balance between the target-groups can be easily determined.
The test-questions must be related very exact to the aims and objectives. The scoring of the answers to the questions has to be in such a way that data which can be processed statistically are obtained. In relation to the complexity of the underpinning model it is recommended that the research-worker motivates point by point for both the nature and intention of the question and also the content and the valuation of the answer.
It seems to be a complicated procedure, but it is the only way to obtain ample enough feedback to the different phases of the process and to the relation between the phases. The product-evaluation must therefore enable us to identify where and when mistakes or shortcomings occur. This is essential for the adjustment of the product. After the correction the product must be evaluated again. Such a second evaluation and an eventual renewed correction must be followed, if necessary, by a third one etc. The product evaluation has to go on untill an optimal product is obtained.

Also, the product-evaluation contributes to a refinement of the knowledge of and insight into the process-model. When we regard it in this way, product-evaluation is at the service of process-evaluation.
Evaluation activities require a high degree of conscientiousness and thus cost a lot of time and energy. However, when the educational aims are of such a great importance, as in the case of geography, and in relation to the increasing demands on education, where the information can be used again and again then it seems that the investment of time and energy is fully justified.

4. *A reflection on the conceptual curriculum model for geography*

We will give a short reflection on the model. In doing so we hope to support the reader and the potential user of the model with some useful background information.
What then is distinctive for the model?
First we think an authentic systems approach is characteristic of the model. It is not a loose composition of curriculum elements to be realized in a desirable order, but is very strictly structured. The term system is applicable here, the different phases, the elements of the model, having the function of sub-systems. In our description of the phases of the process this becomes clear. In a next publication we will further work out the different sub-systems within the system and as well the connections of the sub-systems with the providing sciences: viz. geography, geographical education and the educational sciences (incl. curriculum theory).
A *second* characteristic of the model we think is the emphasis placed on the discipline and its mutual connections with the objectives which go on to provide a basis for the 'concepts'-structure. A thorough survey of the discipline sources relating to the chosen theme or region is a necessary condition in our model. By thorough we mean along the normal lines of social scientific investigation (posing the problem etc.). Only after this often very time-consuming work has been done can the next step be taken. From the interaction between the objectives and the outcomes of the study of the sources, the concepts-structure will be designed. We underline this engagement because so much attention has been paid in the last 15 years

on the formulation of a taxonomy of the objectives (we can almost speak of an objectives-syndrome), that it seems only a matter of selection of material from the discipline to fill in the objectives. We are convinced that this viewpoint has done much harm to the output as well as to geographical education and the discipline as such. Of course we would not deny the importance of the objectives model. We will only point to the one-sidedness of the argument.

A *third* and last characteristic we want to emphasize is the position of the media. We have separated the means of expression from the communication-channel. We take the view, on the outcome of our previous research, that the different means of expression are primarily sources of knowledge, thus they should completement and not replace each other. So in the phase of information structure attention should be paid, as we did in the model, to the best means of expressing the content. Only in a later phase, in accordance with the constraints, we do have to choose a channel for our recording our means of expression. So in its ultimate form the means of expression is really a means of optimizing the information (supposing that our choice was right). Thus we hope to avoid that the content will be presented essentially in a written,verbal, form with decoration with pictures, maps, sketches, tables, graphs etc. just for cosmetic effect. We explicitly wish to see the media functioning in harmony with the information. Of course many 'authors' in practice do pay attention to this matter. It was our intention here to present the functional view in a systematic way and within the model. Apart from that we hope in the near future to get rid of the word illustration in the context of geographical information. In fact the word is a relict of the Gutenberg period in which the printed word was holy and the illustration a kind extra of the author.